# Comp 502: Production Programming

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**Prerequisites:** Comp 411 or 511

This course shows students how to adapt and extend the OO and functional program design concepts taught in undergraduate Computer Science curricula to the enterprise of developing production programs on mainstream application platforms such as the Java Virtual Machine and .NET. Historically, most of the class projects have involved developing and extending open source Java and Scala applications such as the DrJava and DrScala pedagogic programming environments distributed via SourceForge at `drjava.org`.

The course focuses on bolstering students' practical programming skills including:

- Developing and managing large code bases using:
  - scripting languages like ant, maven, and sbt (Scala build tool);
  - documentation tools like *javadoc* and *scaladoc*;
  - unit testing and property testing frameworks like JUnit and ScalaTest;
  - version control systems like subversion and git; and
  - code coverage tools like JaCoCo and Scoverage (Scala Coverage).
- Systematically designing code units relying lightweight use-case specifications such as user stories, inheritance hierarchies stressing contract preservation, and property testing protocols embodying code contracts.
- Working in small, agile programming teams to create new open source software products such as enhanced versions of DrJava, DrScala, and similar software systems.

Some course material is covered in conventional lectures, books and online resource materials for practitioners, but most learning takes place in the context of designing and building production programs.